

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 1 240 881 A3

(12)

#### **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: 12.05.2004 Bulletin 2004/20

(51) Int Cl.7: A61F 13/49, A61F 13/15

- (43) Date of publication A2: 18.09.2002 Builetin 2002/38
- (21) Application number: 02251732.0
- (22) Date of filing: 12.03.2002
- (84) Designated Contracting States:

  AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU

  MC NL PT SE TR

  Designated Extension States:

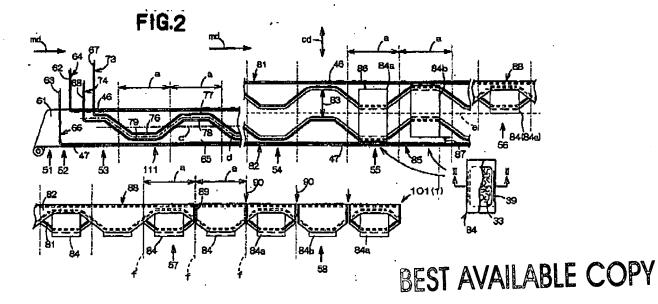
  AL LT LV MK RO SI
- (30) Priority: 15.03.2001 JP 2001074711
- (71) Applicant: UNI-CHARM CORPORATION Kawanoe-shi Ehime-ken (JP)

- (72) Inventors:
  - Otsubo, Toshifumi, c/o Technical Center Mitoyo-gun, Kagawa-ken 769-1602 (JP)
  - Yamamoto, Hiroki, c/o Technical Center Mitoyo-gun, Kagawa-ken 769-1602 (JP)
- (74) Representative: Parry, Christopher Stephen Saunders & Dolleymore, 9 Rickmansworth Road Wattord, Horts: WD18 0JU (GB)

## (54) Process for continuously making pants-type disper

(57) A process for making a pants-type diaper without generation of waste material. The pants-type diaper is composed of a body fluid absorbent pad member 4 curved in a U-shape, a front waist member 2 and a rear waist member 3 extending around front and rear waist-halves, respectively. The front and rear waist members 2, 3 are obtained by feeding first and second elastic members in parallel to each other in a machine direction

so as to describe substantially sinusoidal curves, respectively, securing these elastic members to one surface of a web fed in the machine direction and then transversely bisecting the web between the first and second elastic members. The first and second elastic members are symmetric to each other about a center line bisecting the web but phase-shifted with respect to each other in the machine direction by half a cycle of the substantially sinusoidal curve.



P 1 240 881 A3

#### EP 1 240 881 A3



- 1 of 10 0

### **EUROPEAN SEARCH REPORT**

**Application Number** EP 02 25 1732

| tegary             | Citation of document with it of relevant passa  | adication, where appropriate,                              | Relevant<br>to claim   | CLASSIFICATION OF THE<br>APPLICATION (Int.CLZ) |
|--------------------|---|--|--|--|
|                    | EP 1 249 214 A (UNI   | CHARM CORP)  | 1-5  | A61F13/49<br>A61F13/15                         |
| ,ο                 | EP 0 797 970 A (UNI<br>1 October 1997 (199<br>* column 3, line 39<br>figure 3 *   | CHARM CORP)<br>07-19-01)<br>0 - column 4, line 55          | : 1-5  |  |
|                    | EP 0 688 551 A (UNI<br>27 December 1995 (1<br>* column 3, line 57<br>figures *  | CHARM CORP)<br>1995-12-27)<br>7 • column 5, line 44        | ; 1-5  |  |
|                    | US 4 917 746 A (KOM<br>17 April 1990 (1990<br>* column 4, line 39<br>figures 2,3 *  | OS HUGO L ET AL)<br>3-04-17)<br>3- column 6, line 21       | : 1-5  | TECHNICAL RELDS                                |
|                    | ·<br> -   | •  |  | SEARCHED (Intcl.7) A61F                        |
|                    |   |  |  |  |
|                    |   | ·  |  |  |
|                    |   |  |  |  |
|                    | The present search report has t   | seen drawn up for all claims                               |  |  |
|                    | Place of ecorch   | Date of pompreton of the searc                             | ı  | Examiner                                       |
|                    | MUNICH  | 17 March 2004  | Bace   | ignone, M                                      |
| X:parti<br>Y:parti | TEGORY OF CITED DOCUMENTS<br>outling retevant it token abone<br>outling retevant it combined with anoth<br>them of the sume category<br>no legical background | E : extler pate;<br>after the film<br>par D : classument o | reipte underlying the im<br>it document, but publish<br>g data<br>lied in the application<br>led for other reasons | rention<br>and on, or                          |

EP 1 240 881 A3

#### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 1732

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EOP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-03-2004

| Patent docume<br>gjjed in search re |   | Publication date |                      | Patent family<br>member(s)                           | Publication date                                     |
|-------------------------------------|---|------------------|----------------------|--|--|
| EP 1249214                          | A | 16-10-2002       | JP<br>AU<br>CA<br>CN | 2002306534 A<br>3140802 A<br>2380505 A1<br>1391876 A | 22-10-2002<br>17-10-2002<br>12-10-2002<br>22-01-2003 |
| •                                   |   |                  | EP<br>TW<br>. US .   | 1249214 A2<br>531415 B<br>2002151864 A1              | 16-10-2002<br>11-05-2003<br>17-10-2002               |
| EP 0797970                          | A | 01-10-1997       | JP<br>JP             | 3317836 B2<br>9224973 A                              | 26-08-2802<br>02-09-1997                             |
|                                     |   |                  | CN<br>EP             | 1174122 A .B<br>0797970 A2                           | 25-02-1998<br>01-10-1997                             |
|                                     |   |                  | ID<br>SG             | 16259 A<br>66355 Al                                  | 18-09-1997<br>20-07-1999                             |
|                                     |   |                  | US                   | 5858151 A  | 12-01-1999   |
| EP 0688551                          | A | 27-12-1995       | JP<br>JP             | 3186263 A<br>7059243 B                               | 14-08-1991<br>28-06-1995                             |
|                                     |   |                  | EΡ                   | 0688551 A2   | 27-12-1995   |
|                                     |   |                  | AU<br>AU             | 641454 B2<br>6812590 A                               | 23-09-1993<br>20-06-1991                             |
|                                     |   | •                | CA<br>DE             | 2032388 AI<br>69027592 D1                            | 19-06-1991<br>01-08-1996                             |
|                                     |   |                  | DE                   | 69027592 T2  | 05-02-1997   |
|                                     |   |                  | DE<br>DE             | 69032509 D1<br>69032509 T2                           | 27-08-1998<br>22-04-1999                             |
|                                     |   |                  | EP<br>SB             | 0437771 A2<br>2239783 A ,B                           | 24-07-1991<br>17-07-1991                             |
|                                     |   |                  | GB                   | 2266445 A ,B   | 03-11-1993   |
|                                     |   |                  | KR<br>US             | 9601479 Y1<br>5334152 A                              | 17-02-1996<br>02-08-1994                             |
|                                     |   |                  | US<br>US             | 5645543 A<br>5055103 A                               | 08-07-1997<br>08-10-1991                             |
|                                     |   |                  | US                   | 5197960 A  | 30-03-1993   |
| US 4917746                          | A | 17-04-1990       | ĄŲ                   | 556926 B2  | -27-11-1986  |
|                                     |   |                  | AU<br>Br             | 1507583 A<br>8303213 A                               | 95-01-1984<br>31-01-1984                             |
|                                     |   |                  | CA<br>GB             | 1195963 A1   | 29-10-1985   |
|                                     |   |                  | IT                   | 2123272 A ,B<br>1173723 B                            | 01-02-1984<br>24-06-1987                             |
|                                     |   |                  | MX<br>ZA             | 156384 A<br>8303841 A                                | 16-08-1988<br>29-02-1984                             |
| a                                   |   |                  |                      | ***************************************              | 45 6541  |
|                                     |   |                  |                      |  |  |

For more details about this annex; see Official Journal of the European Patent Office, No. 12/82

# This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

# BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

| Defects in the images include but are not limited to the items checked: |
|---|
| □ BLACK BORDERS   |
| ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES                                 |
| ☐ FADED TEXT OR DRAWING   |
| ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING                                  |
| ☐ SKEWED/SLANTED IMAGES   |
| ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS                                  |
| ☐ GRAY SCALE DOCUMENTS  |
| ☐ LINES OR MARKS ON ORIGINAL DOCUMENT                                   |
| ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY                 |
| OTHER:  |

## IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.